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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,493	12/18/2003	Yun-Sheng Chen	ADTP0095USA	1492
27765	7590	11/15/2005	EXAMINER	
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			WILLIAMS, JOSEPH L	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/707,493

Applicant(s)

CHEN, YUN-SHENG

Examiner

Joseph L. Williams

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2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanamura et al. (US 6,306,559).

Regarding claim 1, Tanamura ('559) teaches in figure 1b and in column 7, lines 8+, an organic light emitting diode (OLED) structure (no number) comprising: a transparent conductive layer (2) disposed on a top surface of a substrate (1), a width of a bottom surface of the transparent conductive layer being greater than a width of a top surface of the transparent conductive layer (see drawing, the shape is the same as

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disclosed in figures 5 and 6 of the instant Application) an organic thin film (4) disposed on the substrate, and the organic thin film covering the transparent conductive layer; and a metal layer (5) disposed on the organic thin film.

Regarding claim 2, Tanamura ('559) teaches the substrate comprises a glass substrate, a quartz substrate, or a metal substrate. (see column 7, lines 19-24)

Regarding claim 3, Tanamura ('559) teaches the transparent conductive layer comprises an indium tin oxide (ITO) layer or an indium zinc oxide (IZO) layer, and the transparent conductive layer is used as an anode of the organic light-emitting diode. (see column 7, lines 25-30 and 16-18)

Regarding claim 4, Tanamura ('559) teaches a tilt angle greater than 90 degrees is formed between the top surface of the transparent conductive layer and a sidewall of the transparent conductive layer. (see figure 2 and compare with figure 5 of the instant Application).

Regarding claim 5, Tanamura ('559) teaches a thickness of the transparent conductive layer is smaller than a thickness of the organic thin film. (see column 8, lines 8-10).

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Regarding claim 6, Tanamura ('559) teaches the thickness of the transparent conductive layer is greater than or approximately equal to 400 angstroms. (see column 8, lines 8-10)

Regarding claim 7, Tanamura ('559) teaches the thickness of the organic thin film is greater than or approximately equal to 1000 angstroms. (see column 18, lines 18-20 and column 19, lines 5-11)

Regarding claim 8, Tanamura ('559) teaches the organic thin film further comprises a hole transport layer (HTL) disposed on a surface of the transparent conductive layer, an emitting layer (EL) disposed on a surface of the hole transport layer, and an electron transport layer (ETL) disposed on a surface of the emitting layer. (see column 22, embodiment 3)

Regarding claim 9, Tanamura ('559) teaches a hole injection layer (HIL) disposed between the transparent conductive layer and the hole transport layer, and an electron injection layer (EIL) disposed between the electron transport layer and the metal layer. (see example 6 and also note that metal layer (5) can have a plurality of layers including an electron injection layer)

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Regarding claim 10, Tanamura ('559) teaches the metal layer comprises a magnesium layer (Mg layer), an aluminum layer (Al layer), a lithium layer (Li layer), or an alloy layer, and the metal layer is used as a cathode of the organic light emitting diode.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanamura et al. (US 6,306,559), of record, in view of Hisamoto (US 5,321,295).

Regarding claim 11, Tanamura ('559) teaches in figure 1b and in column 7, lines 8+, an organic light emitting diode (OLED) structure (no number) comprising: a transparent conductive layer (2) disposed on a top surface of a substrate (1), a width of a bottom surface of the transparent conductive layer being greater than a width of a top surface of the transparent conductive layer (see drawing, the shape is the same as disclosed in figures 5 and 6 of the instant Application) an organic thin film (4) disposed on the substrate, and the organic thin film covering the transparent conductive layer; and a metal layer (5) disposed on the organic thin film.

Tanamura ('559) does not disclose that the conductive layer has a step structure.

Further regarding claim 11, Hisamoto ('295) teaches that an electrode can have a step structure for the purpose of increasing the resistance, and thus suppressing excessive current flow so as to prevent short-circuiting.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the step structure electrode of Hisamoto in the EL display of Tanamura or the purpose of increasing the resistance, and thus suppressing excessive current flow so as to prevent short circuiting.

Regarding claim 12, Tanamura ('559) teaches the substrate comprises a glass substrate, a quartz substrate, or a metal substrate. (see column 7, lines 19-24)

Regarding claim 13, Tanamura ('559) teaches the transparent conductive layer comprises an indium tin oxide (ITO) layer or an indium zinc oxide (IZO) layer, and the transparent conductive layer is used as an anode of the organic light-emitting diode. (see column 7, lines 25-30 and 16-18)

Regarding claim 14, Tanamura ('559) teaches a tilt angle approximately equal to 90 degrees is formed on the step structure. (see figure 2 and compare with figure 5 of the instant Application).

Regarding claim 15, Tanamura ('559) teaches a thickness of the transparent conductive layer is smaller than a thickness of the organic thin film. (see column 8, lines 8-10).

Regarding claim 16, Tanamura ('559) teaches the thickness of the transparent conductive layer is greater than or approximately equal to 400 angstroms (see column 8, lines 8-10), and the thickness of the organic thin film is greater than or approximately equal to 1000 angstroms. (see column 18, lines 18-20 and column 19, lines 5-11)

Regarding claim 17, Tanamura ('559) teaches the organic thin film further comprises a hole transport layer (HTL) disposed on a surface of the transparent conductive layer, an emitting layer (EL) disposed on a surface of the hole transport layer, and an electron transport layer (ETL) disposed on a surface of the emitting layer. (see column 22, embodiment 3)

Regarding claim 18, Tanamura ('559) teaches a hole injection layer (HIL) disposed between the transparent conductive layer and the hole transport layer, and an electron injection layer (EIL) disposed between the electron transport layer and the metal layer. (see example 6 and also note that metal layer (5) can have a plurality of layers including an electron injection layer)



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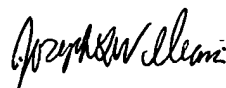
Regarding claim 19, Tanamura ('559) teaches the metal layer comprises a magnesium layer (Mg layer), an aluminum layer (Al layer), a lithium layer (Li layer), or an alloy layer, and the metal layer is used as a cathode of the organic light emitting diode.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Williams whose telephone number is (571) 272-2465. The examiner can normally be reached on M-F (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph L. Williams  
Primary Examiner  
Art Unit 2879